

Notice of Allowability

Application No.

10/065,724

Applicant(s)

RAO ET AL.

Examiner

Art Unit

Tesfaldet Bocure

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to 11/13/02.
2. ☒ The allowed claim(s) is/are 1-14.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 5/17/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other Ex. Amendment to Drawing

TESFALDET BOCLURE
PRIMARY EXAMINER

DETAILED ACTION

Information Disclosure Statement

1. The Examiner has considered the Information Disclosure Statement (IDS) received on May 17, 2004 and the initialed copy (two copies) of the IDS is attached with this correspondence.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In the Abstract of the Disclosure

The title, "COMBINING DIRECT INTERFERENCE ESTIMATION AND DECODER METRICS FOR IMPROVED MEASUREMENT FOR AMR MODE ADAPTATION IN GSM SYSTEMS" in the abstract of the disclosure has been deleted.

3. The examiner has made the following changes to the drawings: Figure 1 has been amended to include the label as "Prior Art." See specification in page 1. In order to avoid abandonment of the application, applicant must make these above agreed upon drawing changes.

4. The following is an examiner's statement of reasons for allowance: The claimed subject matter in claims 1-14 is allowable because the arts of record fail to teach or fairly suggest the claimed "method of combining a channel quality estimate for a radio channel based on a direct measurement of carrier and interferer energies (f20 fig. 2), and a channel quality estimate (22 and 26) for the radio channel based on channel decoder metrics, to obtain a better overall estimate of the carrier-to-interference (C/I) ratio measure of the channel quality for the radio channel, said method comprising: Obtaining a direct channel quality estimate based on carrier and interferer energies; obtaining a channel decoder metric based channel quality estimate; computing a confidence level, $P(\text{direct})$, for the direct channel quality estimate, and a confidence level, $P(\text{metric})$, for the decoder metric channel quality estimate wherein,
 $0 < P(\text{direct}) < 1$, $0 < P(\text{metric}) < 1$, and $P(\text{direct}) + P(\text{metric}) = 1$;
multiplying $P(\text{direct})$ by the direct channel quality estimate and $P(\text{metric})$ by the decoder metric channel quality estimate; and
adding the respective products to obtain a final channel quality estimate in terms of the carrier-to-interference (C/I) ratio for the radio channel" as in claims 1 and 8. See element 28 in fig. 2 and figure 3.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US patent Application Publication number US 2003/0086371 to Walton et al. discloses a receiver having generating metrics according to the signal-to-noise ratio and decoded received signal to select the rate of the receiver.
6. US patent numbers 5,193,102 and 5,450,453 issued to Meidan et al. and Frank disclose a receiver for estimating channel according to the decoder metrics.
7. IEEE publication "Turbo Decoding on Raleigh Fading Channels with Noisy Channel Estimates" to Pal Frenger discloses a channel estimation using decoder's metric.
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tesfaldet Bocure whose telephone number is (571) 272-3015. The examiner can normally be reached on Mon-Thur (7:30a-5:00p) & Mon.-Fri (7:30a-5:00p).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T.Bocure

Tesfaldet Bocure
Primary Examiner
Art Unit 2631



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2/3/08

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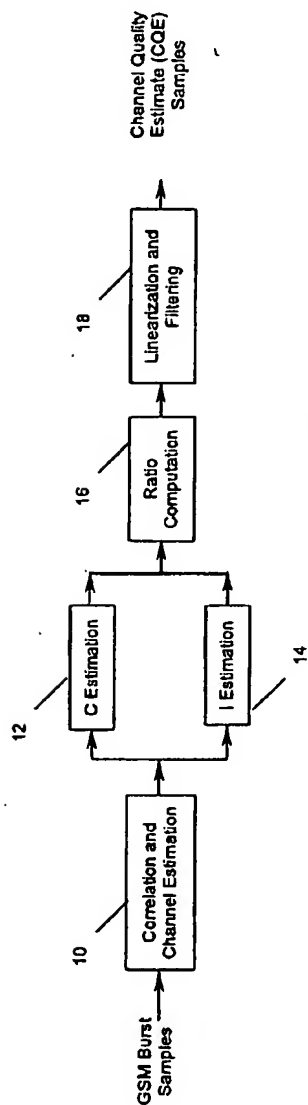


FIG. 1 PRIOR ART

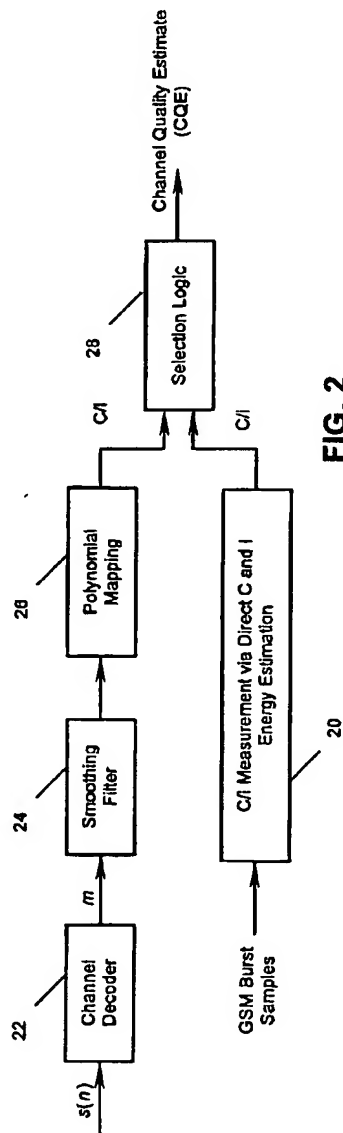


FIG. 2

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